

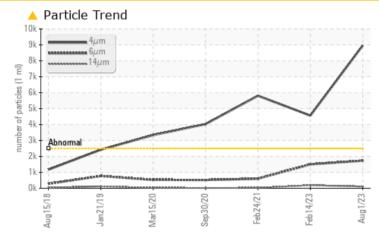
## **PROBLEM SUMMARY**

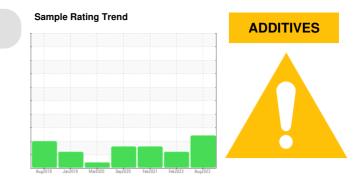
#### Area 076 G1 [2697536] Machine Id B-9002 Blower (S/N LR97-639) Component

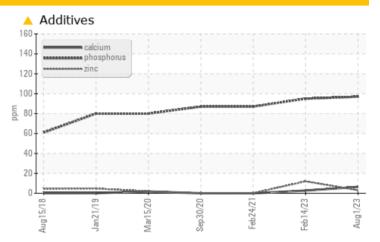
Blower Fluid

## SHELL CORENA P 100 (12 GAL)

### COMPONENT CONDITION SUMMARY







#### RECOMMENDATION

Confirm oil reference for machine. No other action required at this time. Resample at next normal interval.

## PROBLEMATIC TEST RESULTS

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Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Calcium	ppm	ASTM D5185m	60	<u> </u>	<u> </u>	<u> </u>
Zinc	ppm	ASTM D5185m	190	<u> </u>	<b>1</b> 2	<b>0</b>
Sulfur	ppm	ASTM D5185m	1300	<u> </u>	<u> </u>	<b>1</b> 20
Particles >4µm		ASTM D7647	>2500	<u> </u>	4564	5808
Particles >6µm		ASTM D7647	>640	<u> </u>	1501	601
Oil Cleanliness		ISO 4406 (c)	>18/16/13	<u> </u>	19/18/15	20/16/12

Customer Id: HEXGEI Sample No.: PLS0000670 Lab Number: 05935314 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Mike Johnson +1 (615)771-6030 mike.johnson@amrri.com

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

#### **RECOMMENDED ACTIONS**

There are no recommended actions for this sample.

#### HISTORICAL DIAGNOSIS

#### 14 Feb 2023 Diag: Mike Johnson



Confirm oil reference for machine. No other action required at this time. Resample at next normal interval.Wear particles are low and acceptable. Contamination is on par with new unfiltered oil. Fluid health indicators do not match the reference oil, but are steady compared to previous samples.

#### 24 Feb 2021 Diag: Mike Johnson



# Sample at next normal interval. The wear debris level

Sample at next normal interval. The wear debris levels in this sample are low and appropriate. The PQ value, which reflects larger ferromagnetic particles, is slightly elevated. There is no indication of lubricant health problems in this sample. The fluid is acceptable for continued use. There is no indication of lubricant health problems in this sample. The fluid is acceptable for continued use. Without a reference sample it is particularly difficult to make a judgement call about the relative health of the fluid.

#### 30 Sep 2020 Diag: Mike Johnson

#### ADDITIVES



No other corrective actions. Sample at the regular intervalWear rate is low and steady. Particulate levels are typical for new oil from the drum. Filter is possible. Additive levels are not consistent with Corena P 100 fluid, but additives levels are steady, and the fluid properties suggest the oil is acceptable for continued use.



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Report Id: HEXGEI [WUSCAR] 05935314 (Generated: 08/28/2023 12:54:49) Rev: 1



## **OIL ANALYSIS REPORT**

#### Area 076 G1 [2697536] Machine Id B-9002 Blower (S/N LR97-639) Component

Blower

Fluid SHELL CORENA P 100 (12 GAL)

### DIAGNOSIS

#### Recommendation

Confirm oil reference for machine. No other action required at this time. Resample at next normal interval.

#### Wear

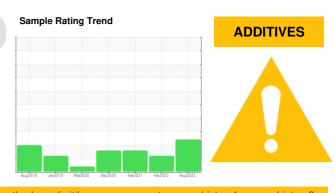
Wear particles are low and acceptable.

#### Contamination

Contamination is on par with new unfiltered oil. Filtration can help extend machine life.

#### Fluid Condition

Fluid health indicators do not match the reference oil, but are steady compared to previous samples.

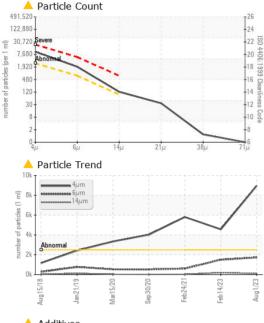


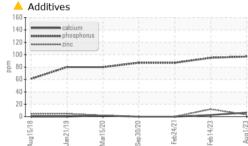
Sample NumberClient InfoPLS0000670PLS0000547PLS0000347PLS0000347PLS0000347Sample DatevrsClient Info340Machine AgeyrsClient Info340Oil AgeyrsClient Info118Oil ChangedvrsClient InfoNot ChangedN/ASample StatusvrsClient InfoABNORMALABNORMALABNORMALVEAR METALSmethodlimitbasecurrenthistory1history2PQASTM D8168>20<1<12ChromiumppmASTM D51858>20<000NickelppmASTM D51858>20000NickelppmASTM D51858>20000NickelppmASTM D51858>20000NickelppmASTM D51858>20000CopperppmASTM D51858>20<1<11NimonyppmASTM D51858>20<1<10AntimonyppmASTM D51858>20<1<10AntimonyppmASTM D51858>20<1<10AntimonyppmASTM D51858>20<1<10AntimonyppmASTM D51858<0<1<10AntimonyppmASTM D51858<0<0<1<1Antimony </th <th>SAMPLE INFORM</th> <th>IATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age Oil AgeyrsClient Info340Oil Age Sample StatusClient Info118Oil ChangedClient InfoNot ChangedChangedN/ASample StatusIIBNORMALABNORMALABNORMALWEAR METALSmethodInit/basecurrenthistory1history2PQASTM D8184242129IronppmASTM D8185>20000NickelppmASTM D5185>20000NickelppmASTM D5185>20000NickelppmASTM D5185>20000NationumppmASTM D5185>20000AluminumppmASTM D5185>20000LeadppmASTM D5185>20<1<11TinppmASTM D5185>20<1<10AntimonyppmASTM D5185>20<1<10AdadiumppmASTM D5185>20<1<10AdadiumppmASTM D5185>20<1<10AdadiumppmASTM D5185>20<1<10AdadiumppmASTM D5185<0000AdadiumppmASTM D5185<0001AdadiumppmASTM D51850001 </th <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>PLS0000670</th> <th>PLS0000547</th> <th>PLS0000326</th>	Sample Number		Client Info		PLS0000670	PLS0000547	PLS0000326
Oil AgeyrsClient Info118Oil ChangedClient InfoNot Changed ABNORMALChanged ABNORMALN/ASample StatusClient InfoNot Changed ABNORMALN/AWEAR METALSmethodlimit/basecurrenthistory1ABNORMALPQASTM D8184242129IronppmASTM D5185m>20000NickelppmASTM D5185m>20000NickelppmASTM D5185m>20000SilverppmASTM D5185m>20000LeadppmASTM D5185m>20000CopperppmASTM D5185m>20000CadmiumppmASTM D5185m>20<1<11TinppmASTM D5185m>20<1<10AntimonyppmASTM D5185m>20<1<10VanadiumppmASTM D5185m<1<100CadmiumppmASTM D5185m<1<100ADITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m000<10MagnesiumppmASTM D5185m000<10MagnesiumppmASTM D5185m000<11Magnesiumpp	Sample Date		Client Info		01 Aug 2023	14 Feb 2023	24 Feb 2021
Normal Sample StatusNot Changed Client InfoNot Changed ABNORMALN/A ABNORMALWEAR METALSmethodlimit/basecurrenthistory1history2PQASTM D8184242129IronppmASTM D5185m>20<1<12ChromiumppmASTM D5185m>200000NickelppmASTM D5185m>200000SilverppmASTM D5185m>200000SilverppmASTM D5185m>200000LeadppmASTM D5185m>200000CopperppmASTM D5185m>20<1<100AntimonyppmASTM D5185m>20<1<1000VanadiumppmASTM D5185m>20<1<1000VanadiumppmASTM D5185m0000110ADDITIVESmethodlimit/basecurrenthistory1history2A001BariumppmASTM D5185m000<100110ManganeseppmASTM D5185m000<101101101101101110111 <td< th=""><th>Machine Age</th><th>yrs</th><th>Client Info</th><th></th><th>3</th><th>4</th><th>0</th></td<>	Machine Age	yrs	Client Info		3	4	0
Sample StatusImage for the statusImage for the statusMethodMethodABNORMALABNORMALABNORMALABNORMALABNORMALMastoryPQASTM D5186>20Currenthistory129IronppmASTM D5185>20000NickelppmASTM D5185>20000NickelppmASTM D51850000TitaniumppmASTM D518520000AluminumppmASTM D518520000CopperppmASTM D518520000CopperppmASTM D518520<1<10AntimonyppmASTM D518520<1<10VanadiumppmASTM D518520<1<10AdminumppmASTM D518520<1<10VanadiumppmASTM D51850000AdminumppmASTM D5185000<1BariumppmASTM D5185000<1ManganeseppmASTM D5185000<1ManganeseppmASTM D5185000<1ManganeseppmASTM D51850027120ContraktinkerppmASTM D5185103120SulfurppmASTM D5185	Oil Age	yrs	Client Info		1	1	8
WEAR METALS         method         limit/base         current         history1         history2           PQ         ASTM 08184         24         21         29           Iron         ppm         ASTM 05185m         >20         0         0         0           Nickel         ppm         ASTM 05185m         >20         0         0         0           Nickel         ppm         ASTM 05185m         >20         0         0         0           Silver         ppm         ASTM 05185m         >20         0         0         0           Aluminum         ppm         ASTM 05185m         >20         0         0         0           Lead         ppm         ASTM 05185m         >20         <1         <1         1           Tin         ppm         ASTM 05185m         >20         <1         <1         0           Cadmium         ppm         ASTM 05185m         >20         <1         <1         0           Cadmium         ppm         ASTM 05185m         >20         <1         <1         0           Cadmium         ppm         ASTM 05185m         0         0         0         0         0 <tr< th=""><th>Oil Changed</th><th></th><th>Client Info</th><th></th><th>Not Changd</th><th>Changed</th><th>N/A</th></tr<>	Oil Changed		Client Info		Not Changd	Changed	N/A
PQ         ASTM D8184         24         21         29           Iron         ppm         ASTM D5185n         >20         <1         <1         2           Chromium         ppm         ASTM D5185n         >20         0         0         0           Nickel         ppm         ASTM D5185n         >20         0         0         0           Nickel         ppm         ASTM D5185n         >20         0         0         0           Silver         ppm         ASTM D5185n         >20         0         <10         0           Lead         ppm         ASTM D5185n         >20         <1         <1         1           Tin         ppm         ASTM D5185n         >20         <1         <1         0           Antimony         ppm         ASTM D5185n         >20         <1         <1         0           Antimony         ppm         ASTM D5185n         >20         <1         <1         0           Cadmium         ppm         ASTM D5185n         0         0         0         0         0           Manganese         ppm         ASTM D5185n         0         0         0         <1         1 </th <th>Sample Status</th> <th></th> <th></th> <th></th> <th>ABNORMAL</th> <th>ABNORMAL</th> <th>ABNORMAL</th>	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Iron         ppm         ASTM D5185m         >20         <1	WEAR METALS		method	limit/base	current	history1	history2
Chromium         ppm         ASTM D5185m         >20         0         0         0           Nickel         ppm         ASTM D5185m         >20         0         0         0           Silver         ppm         ASTM D5185m         0         0         <11	PQ		ASTM D8184		24	21	29
Nickel         ppm         ASTM D5185m         >20         0         0         0           Titanium         ppm         ASTM D5185m         0         0         0         0           Silver         ppm         ASTM D5185m         >20         0         0         0         0           Aluminum         ppm         ASTM D5185m         >20         0         0         0         0           Lead         ppm         ASTM D5185m         >20         <1	Iron	ppm	ASTM D5185m	>20	<1	<1	2
Titanium         ppm         ASTM D5185m         0         0         0           Silver         ppm         ASTM D5185m         >20         0         <1	Chromium	ppm	ASTM D5185m	>20	0	0	0
Silver         ppm         ASTM D5185m         0         0         <1           Aluminum         ppm         ASTM D5185m         >20         0         <1	Nickel	ppm	ASTM D5185m	>20	0	0	0
Aluminum         ppm         ASTM D5185m         >20         0         <1         0           Lead         ppm         ASTM D5185m         >20         0         0         0           Copper         ppm         ASTM D5185m         >20         <1         <1         1           Tin         ppm         ASTM D5185m         >20         <1         <1         0           Antimony         ppm         ASTM D5185m         >20         <1         <1         0           Vanadium         ppm         ASTM D5185m         >20         <1         <10         0           Vanadium         ppm         ASTM D5185m          <1         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0         0           ADDTTVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           Manganese         ppm         ASTM D5185m         0         0         0         <11         0           Sulfur         ppm         ASTM D5185m <t< td=""><td>Titanium</td><td>ppm</td><td>ASTM D5185m</td><td></td><th>0</th><td>0</td><td>0</td></t<>	Titanium	ppm	ASTM D5185m		0	0	0
Lead         ppm         ASTM D5185m         >20         0         0         0           Copper         ppm         ASTM D5185m         >20         <1	Silver	ppm	ASTM D5185m		0	0	<1
CopperppmASTM D5185m>20<1<11TinppmASTM D5185m>20<1	Aluminum	ppm	ASTM D5185m	>20	0	<1	0
Th         ppm         ASTM D5185m         >20         <1         <1         0           Antimony         ppm         ASTM D5185m          0           Vanadium         ppm         ASTM D5185m          0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         1           Barium         ppm         ASTM D5185m         0         0         0         1           Magnaese         ppm         ASTM D5185m         0         0         0         <1	Lead	ppm	ASTM D5185m	>20	0	0	0
AntimonyppmASTM D5185m0VanadiumppmASTM D5185m<1	Copper	ppm	ASTM D5185m	>20	<1	<1	1
Vanadium         ppm         ASTM D5185m         <1         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         1           Barium         ppm         ASTM D5185m         0         0         <1	Tin	ppm	ASTM D5185m	>20	<1	<1	0
CadmiumppmASTM D5185m000ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m0001BariumppmASTM D5185m0001MolybdenumppmASTM D5185m0000ManganeseppmASTM D5185m000<1	Antimony	ppm	ASTM D5185m				0
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m0001BariumppmASTM D5185m000<1	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron         ppm         ASTM D5185m         0         0         0         1           Barium         ppm         ASTM D5185m         0         0         <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         0         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         0         0         0         0         0           Manganese         ppm         ASTM D5185m         0         0         0         <1           Magnesium         ppm         ASTM D5185m         0         0         0         <1           Calcium         ppm         ASTM D5185m         0         0         0         <1           Calcium         ppm         ASTM D5185m         60         ▲ 6         3         ▲ 0           Phosphorus         ppm         ASTM D5185m         0         97         95         ▲ 87           Zinc         ppm         ASTM D5185m         190         ▲ 3         12         0           Sulfur         ppm         ASTM D5185m         190         ▲ 3         27         ▲ 120           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         <1         <1         <1           Sodium         ppm         ASTM D5185m         >20         0         0         0           INFRA-RED         method         limit/base         current	Boron	ppm	ASTM D5185m	0	0	0	1
Maganese         ppm         ASTM D5185m         0         0         <1           Magnesium         ppm         ASTM D5185m         0         0         0         <1	Barium	ppm	ASTM D5185m	0	0	<1	0
Magnesium       ppm       ASTM D5185m       0       0       <1         Calcium       ppm       ASTM D5185m       60       ▲ 6       3       ▲ 0         Phosphorus       ppm       ASTM D5185m       0       97       95       ▲ 87         Zinc       ppm       ASTM D5185m       190       ▲ 3       12       ▲ 0         Sulfur       ppm       ASTM D5185m       190       ▲ 3       ▲ 12       ▲ 0         Sulfur       ppm       ASTM D5185m       1300       ▲ 50       ▲ 27       ▲ 120         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >15       <1	Molybdenum	ppm	ASTM D5185m	0	0	0	0
Calcium       ppm       ASTM D5185m       60       ▲ 6       ▲ 3       ▲ 0         Phosphorus       ppm       ASTM D5185m       0       97       95       ▲ 87         Zinc       ppm       ASTM D5185m       190       ▲ 3       12       ▲ 0         Sulfur       ppm       ASTM D5185m       190       ▲ 3       ▲ 12       ▲ 0         Sulfur       ppm       ASTM D5185m       1300       ▲ 50       ▲ 27       ▲ 120         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >15       <1	Manganese	ppm	ASTM D5185m		0	0	<1
Phosphorus         ppm         ASTM D5185m         0         97         95         A 87           Zinc         ppm         ASTM D5185m         190         3         12         0           Sulfur         ppm         ASTM D5185m         190         50         277         120           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         <1         <1         <1           Sodium         ppm         ASTM D5185m         >15         <1         <1         <1           Potassium         ppm         ASTM D5185m         >20         0         0         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.1         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         16.5         16.0         16.5	Magnesium	ppm	ASTM D5185m	0	0	0	<1
Zinc         ppm         ASTM D5185m         190         3         12         0           Sulfur         ppm         ASTM D5185m         1300         50         277         120           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         <1	Calcium	ppm	ASTM D5185m	60	<u> </u>	<u> </u>	<b></b> 0
SulfurppmASTM D5185m13005027120CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>15<1	Phosphorus	ppm	ASTM D5185m	0	97	95	<b>A</b> 87
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m<>15<1	Zinc	ppm	ASTM D5185m	190	<u> </u>	<b>1</b> 2	<b></b> 0
Silicon         ppm         ASTM D5185m         >15         <1	Sulfur	ppm	ASTM D5185m	1300	<b>6</b> 50	<b>2</b> 7	<b>1</b> 20
Sodium         ppm         ASTM D5185m         1         <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         0         0         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.1         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         16.5         16.0         16.5	Silicon	ppm	ASTM D5185m	>15	<1	<1	<1
INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D78440.10.20.2NitrationAbs/cm*ASTM D762416.516.016.5	Sodium	ppm	ASTM D5185m		1	<1	0
Soot %         %         *ASTM D7844         0.1         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         16.5         16.0         16.5	Potassium	ppm	ASTM D5185m	>20	0	0	0
Nitration         Abs/cm         *ASTM D7624         16.5         16.0         16.5	INFRA-RED		method	limit/base	current	history1	history2
	Soot %	%	*ASTM D7844		0.1	0.2	0.2
	Nitration	Abs/cm	*ASTM D7624		16.5	16.0	16.5
		100/011	ACTIVI DTOLT		10.5	10.0	10.0

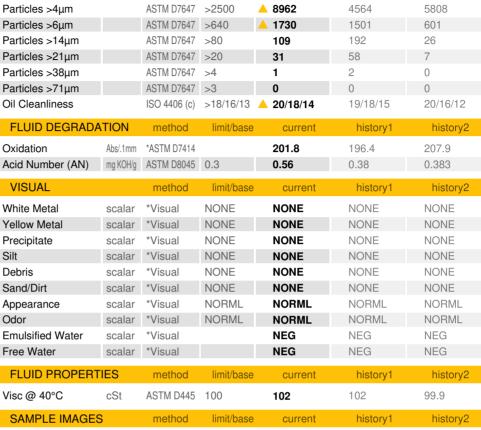


# **OIL ANALYSIS REPORT**

**FLUID CLEANLINESS** 



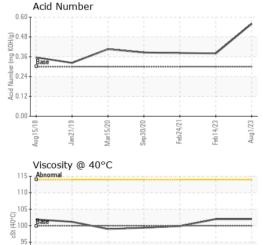


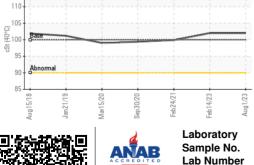


limit/base

current

method



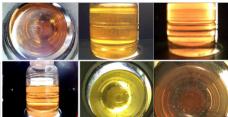


Certificate L2367



Color

Bottom



history1

history2

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 25 Aug 2023 : PLS0000670 : 05935314 Diagnosed : 28 Aug 2023 Unique Number : 10620585 Diagnostician : Mike Johnson Test Package : IND 2 (Additional Tests: FT-IR, PQ, PrtCount) To discuss this sample report, contact Customer Service at 1-800-237-1369. \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Contact/Location: Shannon Ourso - HEXGEI

**HEXION INC - GONZALES PLANT** 

shannon.ourso@hexion.com;mike.johnson@amrri.com

4338 HWY 73

GEISMAR, LA

Contact: Shannon Ourso

US 70734

T:

F: